SEQUENCE LISTING

<110> Fritz, Christian
     Youngman, Philip

<120> USE OF YNES, ESSENTIAL BACTERIAL GENES AND POLYPEPTIDES

<130> 06286-090001

<140> US 09/163,445
<141> 1998-09-30

<150> US 60/070,116
<151> 1997-12-31

<160> 12

<170> FastSEQ for Windows Version 3.0

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<212> PRT
<213> Streptococcus pneumoniae

<400> 1
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            20                  25                  30
Glu His Gly Ser Gly Asn Thr Gly Thr Thr Asn Thr Phe Arg Ile Leu
        35                  40                  45
Gly Lys Lys Ala Gly Met Ala Thr Phe Val Ile Asp Phe Phe Lys Gly
     50                  55                  60
Thr Leu Ala Thr Leu Leu Pro Ile Ile Phe His Leu Gln Gly Val Ser
65                  70                  75                  80
Pro Leu Ile Phe Gly Leu Leu Ala Val Ile Gly His Thr Phe Pro Ile
                85                  90                  95
Phe Ala Gly Phe Lys Gly Gly Lys Ala Val Ala Thr Ser Ala Gly Val
            100                 105                 110
Ile Phe Gly Phe Ala Pro Ile Phe Cys Leu Tyr Leu Ala Ile Ile Phe
            115                 120                 125
Phe Gly Ala Leu Tyr Leu Gly Ser Met Ile Ser Leu Ser Ser Val Thr
    130                 135                 140
Ala Ser Ile Ala Ala Val Ile Gly Val Leu Leu Phe Pro Leu Phe Gly
145                 150                 155                 160
Phe Ile Leu Ser Asn Tyr Asp Ser Leu Phe Ile Ala Ile Ile Leu Ala
                165                 170                 175
Leu Ala Ser Leu Ile Ile Ile Arg His Lys Asp Asn Ile Ala Arg Ile
            180                 185                 190
Lys Asn Lys Thr Glu Asn Leu Val Pro Trp Gly Leu Asn Leu Thr His
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<210> 2
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<212> DNA
<213> Streptococcus pneumoniae

<220>
<221> CDS
<222> (1)...(639)

<400> 2

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 1               5                  10                  15

cca tct ggt ctc tgg att gga caa gta ttc ttt caa atc aat cta cgc        96
Pro Ser Gly Leu Trp Ile Gly Gln Val Phe Phe Gln Ile Asn Leu Arg
                20                  25                  30

gag cat ggt tct ggt aac act gga acg acc aac acc ttc cgc att tta       144
Glu His Gly Ser Gly Asn Thr Gly Thr Thr Asn Thr Phe Arg Ile Leu
            35                  40                  45

ggt aag aaa gct ggt atg gca acc ttt gtg att gac ttt ttc aaa gga       192
Gly Lys Lys Ala Gly Met Ala Thr Phe Val Ile Asp Phe Phe Lys Gly
        50                  55                  60

acc cta gca acg ctg ctt ccg att att ttt cat cta caa ggc gtt tct       240
Thr Leu Ala Thr Leu Leu Pro Ile Ile Phe His Leu Gln Gly Val Ser
 65                  70                  75                  80

cct ctc atc ttt gga ctt ttg gct gtt atc ggc cat acc ttc cct atc       288
Pro Leu Ile Phe Gly Leu Leu Ala Val Ile Gly His Thr Phe Pro Ile
                    85                  90                  95

ttt gca gga ttt aaa ggt ggt aag gct gtc gca acc agt gct gga gtg       336
Phe Ala Gly Phe Lys Gly Gly Lys Ala Val Ala Thr Ser Ala Gly Val
                100                 105                 110

att ttc gga ttt gcg cct atc ttc tgt ctc tac ctt gcg att atc ttc       384
Ile Phe Gly Phe Ala Pro Ile Phe Cys Leu Tyr Leu Ala Ile Ile Phe
            115                 120                 125

ttt gga gct ctc tat ctt ggc agt atg att tca ctg tct agt gtc aca       432
Phe Gly Ala Leu Tyr Leu Gly Ser Met Ile Ser Leu Ser Ser Val Thr
        130                 135                 140

gca tcg att gcg gct gtt atc ggg gtt ctg ctc ttt cca ctt ttt ggt       480
Ala Ser Ile Ala Ala Val Ile Gly Val Leu Leu Phe Pro Leu Phe Gly
145                 150                 155                 160

ttt atc ctg agt aac tat gac tct ctc ttc atc gct att atc tta gca       528
Phe Ile Leu Ser Asn Tyr Asp Ser Leu Phe Ile Ala Ile Ile Leu Ala
                165                 170                 175

ctt gct agt ttg att atc att cgt cat aag gac aat ata gct cgt atc       576
Leu Ala Ser Leu Ile Ile Ile Arg His Lys Asp Asn Ile Ala Arg Ile
            180                 185                 190

aaa aat aaa act gaa aat ttg gtc cct tgg gga ttg aac cta acc cat       624
Lys Asn Lys Thr Glu Asn Leu Val Pro Trp Gly Leu Asn Leu Thr His
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Lys Asn Lys Thr Glu Asn Leu Val Pro Trp Gly Leu Asn Leu Thr His
     195   200   205

caa gat cct aaa aaa taa   642
Gln Asp Pro Lys Lys
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<210> 3
<211> 193
<212> PRT
<213> Bacillus subtilis

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Pro Ser Gly Leu Ile Val Gly Lys Leu Ala Lys Gly Ile Asp Ile Arg
     20   25   30
Glu His Gly Ser Gly Asn Leu Gly Ala Thr Asn Ala Phe Arg Thr Leu
     35   40   45
Gly Val Lys Ala Gly Ser Val Val Ile Ala Gly Asp Ile Leu Lys Gly
    50   55   60
Thr Leu Ala Thr Ala Leu Pro Phe Leu Met His Val Asp Ile His Pro
65   70   75   80
Leu Leu Ala Gly Val Phe Ala Val Leu Gly His Val Phe Pro Ile Phe
        85   90   95
Ala Lys Phe Lys Gly Gly Lys Ala Val Ala Thr Ser Gly Gly Val Leu
     100   105   110
Leu Phe Tyr Ala Pro Leu Leu Phe Ile Thr Met Val Ala Val Phe Phe
     115   120   125
Ile Phe Leu Tyr Leu Thr Lys Phe Val Ser Leu Ser Ser Met Leu Thr
     130   135   140
Gly Ile Tyr Thr Val Ile Tyr Ser Phe Phe Val His Asp Thr Tyr Leu
145   150   155   160
Leu Ile Val Val Thr Leu Leu Thr Ile Phe Val Ile Tyr Arg His Arg
        165   170   175
Ala Asn Ile Lys Arg Ile Ile Asn Lys Thr Glu Pro Lys Val Lys Trp
     180   185   190
Leu

<210> 4
<211> 582
<212> DNA
<213> Bacillus subtilis

<220>
<221> CDS
<222> (1)...(579)

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  1   5   10   15

cca tct ggc tta att gtg ggc aag ctt gcc aaa gga att gat att cgg   96
Pro Ser Gly Leu Ile Val Gly Lys Leu Ala Lys Gly Ile Asp Ile Arg
     20   25   30

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gag cac gga agc ggc aac tta ggc gct acc aat gca ttc cgt aca ttg     144
Glu His Gly Ser Gly Asn Leu Gly Ala Thr Asn Ala Phe Arg Thr Leu
        35                  40                  45

ggt gta aaa gct ggt tcg gtc gtc ata gcc gga gat att ttg aaa ggg     192
Gly Val Lys Ala Gly Ser Val Val Ile Ala Gly Asp Ile Leu Lys Gly
        50                  55                  60

aca ctg gca act gca ttg cct ttt ctc atg cat gtt gat att cac ccg     240
Thr Leu Ala Thr Ala Leu Pro Phe Leu Met His Val Asp Ile His Pro
 65                  70                  75                  80

ctt ctt gca gga gtc ttt gcg gtt tta ggc cac gtg ttt ccc atc ttc     288
Leu Leu Ala Gly Val Phe Ala Val Leu Gly His Val Phe Pro Ile Phe
                    85                  90                  95

gcc aaa ttt aaa ggc ggt aaa gcc gtg gcg aca tca gga ggc gtt ttg     336
Ala Lys Phe Lys Gly Gly Lys Ala Val Ala Thr Ser Gly Gly Val Leu
                100                 105                 110

cta ttt tac gca ccc ctg tta ttt atc acg atg gtt gcg gta ttc ttc     384
Leu Phe Tyr Ala Pro Leu Leu Phe Ile Thr Met Val Ala Val Phe Phe
            115                 120                 125

atc ttt tta tac ttg act aaa ttt gtt tct ctc tca tcg atg tta aca     432
Ile Phe Leu Tyr Leu Thr Lys Phe Val Ser Leu Ser Ser Met Leu Thr
        130                 135                 140

ggg atc tat act gtt ata tat agt ttc ttt gtc cat gat acg tat tta     480
Gly Ile Tyr Thr Val Ile Tyr Ser Phe Phe Val His Asp Thr Tyr Leu
145                 150                 155                 160

ttg att gtc gtt acc ctg ctc act att ttt gtg ata tac aga cac cga     528
Leu Ile Val Val Thr Leu Leu Thr Ile Phe Val Ile Tyr Arg His Arg
                165                 170                 175

gcg aac att aaa cga att atc aat aaa aca gaa cct aaa gta aaa tgg     576
Ala Asn Ile Lys Arg Ile Ile Asn Lys Thr Glu Pro Lys Val Lys Trp
                180                 185                 190

tta taa                                                             582
Leu
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<210> 5
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<212> DNA
<213> Bacillus subtilis

<400> 5
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<210> 6
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<212> DNA
<213> Bacillus subtilis

<400> 6

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  gaattatttc ctcccgttaa a                                         21

<210> 7
<211> 21
<212> DNA
<213> Steptococcus pneumoniae


<400> 7
  acccactccg tgaagtccac c                                         21


<210> 8
<211> 21
<212> DNA
<213> Streptococcus pneumoniae


<400> 8
  gaacccagca gataggctag g                                         21


<210> 9
<211> 21
<212> DNA
<213> Steptococcus pneumoniae


<400> 9
  gaacctaacc catcaagatc c                                         21

<210> 10
<211> 24
<212> DNA
<213> Streptococcus pneumoniae


<400> 10
  cagttttaga tggctttaac agcg                                      24

<210> 11
<211> 642
<212> DNA
<213> Streptococcus pneumoniae

<400> 11
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attttgata cgagctatat tgtccttatg acgaatgata atcaaactag caagtgctaa   120
gataatagcg atgaagagag agtcatagtt actcaggata aaaccaaaaa gtggaaagag   180
cagaaccccg ataacagccg caatcgatgc tgtgacacta gacagtgaaa tcatactgcc   240
aagatagaga gctccaaaga agataatcgc aaggtagaga cagaagatag gcgcaaatcc   300
gaaaatcact ccagcactgg ttgcgacagc cttaccacct ttaaatcctg caaagatagg   360
gaaggtatgg ccgataacag ccaaaagtcc aaagatgaga ggagaaacgc cttgtagatg   420
aaaaataatc ggaagcagcg ttgctagggt tcctttgaaa aagtcaatca caaaggttgc   480
cataccagct ttcttaccta aaatgcggaa ggtgttggtc gttccagtgt taccagaacc   540
atgctcgcgt agattgattt gaaagaatac ttgtccaatc cagagaccag atggaatcga   600
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<212> DNA
<213> Bacillus subtilis
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<400> 12
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aaagaaacta tatataacag tatagatccc tgttaacatc gatgagagag aaacaaattt       180
agtcaagtat aaaaagatga agaataccgc aaccatcgtg ataaataaca ggggtgcgta       240
aaatagcaaa acgcctcctg atgtcgccac ggctttaccg cctttaaatt tggcgaagat       300
gggaaacacg tggcctaaaa ccgcaaagac tcctgcaaga agcgggtgaa tatcaacatg       360
catgagaaaa ggcaatgcag ttgccagtgt ccctttcaaa atatctccgg ctatgacgac       420
cgaaccagct tttacaccca atgtacggaa tgcattggta gcgcctaagt tgccgcttcc       480
gtgctcccga atatcaattc ctttggcaag cttgcccaca attaagccag atggaatgct       540
gcctatcaag taggccaaaa taatcaataa agcaattaac at                         582
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